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DON'T LET YOUR SLIDES FLIP YOU:

A Painless Guide to Visuals That Really Aid

Walter Golman

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CENTER FOR NAVAL ANALYSES

2000 North Beauregard Street, Alexandria, Virginia 22311

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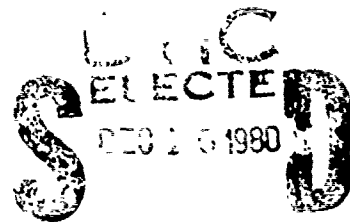
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DON'T LET YOUR SLIDES FLIP YOU

A Painless Guide to Visuals That Really Aid

Why think about slides at all? After all, all of us turn out large quantities of printed reports — by the half-ton, if not the ton. Aren't these printed reports enough? Who, then, needs slides?

The answer, of course, is that the people we want to reach — especially those at higher levels — get much of their information in the form of talks. Or, to use our slightly pompous expressions, "oral presentations" or "briefings." When you give a talk, it is sometimes useful to show slides. So, we're talking about slides.

Our ways of dealing with slides are about the same, whether they are elegant 35-mm. slides, or overhead-projector slides, or the cruder types that you and I prepare in a hurry by printing with a grease pencil on a piece of acetate.

Let's begin with a simple question: *When* should you use a slide? Or, conversely, when shouldn't you? The answer is that every slide must carry its own weight. If it supports your talk, use it. If not, don't. Dump it, burn it, give it to the cat to play with. Do whatever you like, but don't inflict it on your audience.

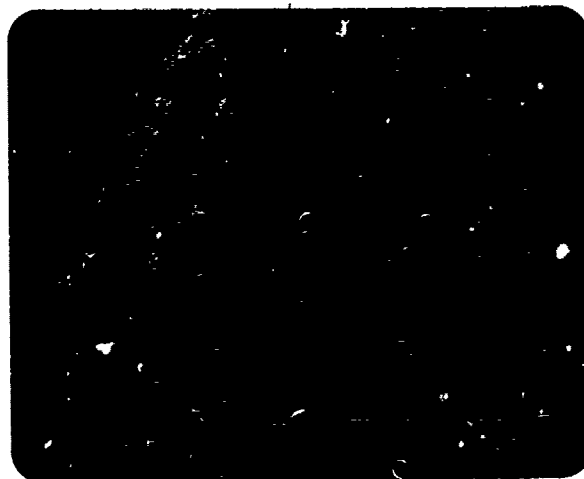
**IF A SLIDE ADVANCES YOUR TALK,
USE IT.**

IF NOT, DON'T.

This talk has been given at the Office of the Chief of Naval Operations and at the 45th Symposium of the Military Operations Research Society.

Artwork prepared by the Graphics Branch of the Office of the Chief of Naval Operations and by the Graphics Section of the Center for Naval Analyses.

Take a look at the screen. It is attractive, clean, inoffensive. You can show it to an infant without fear of corruption. The point I want to make here is that, contrary to the belief of some people, it is not essential that there be something on the screen at every moment of the talk.



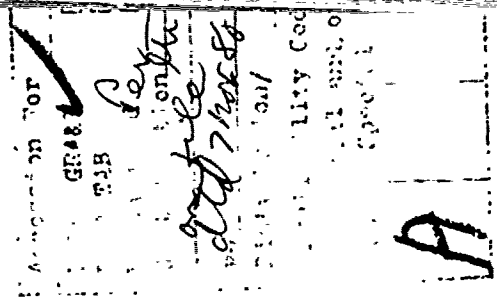
**A BLANK SCREEN
IS NOT A SIGN
OF
MORAL TURPITUDE**

In fact ...

Suppose, now, that we *are* going to use slides. There are several types to choose from. A slide can consist of text (that is, words) or tables (largely, numbers). It can be art, it can be a graph, a picture of land or water (a map or chart). It can be a diagram or a picture (a photo or drawing).

SLIDES

- TEXT
- TABLE
- ART
 - GRAPH
 - MAP OR CHART
 - DIAGRAM
 - PICTURE: PHOTO, DRAWING



WHAT A SLIDE SHOULD DO

➤ SERVE AS ROAD MAP

What can a slide *do* for you? Four main things: First, it can serve as a kind of *road map* — telling your audience where you are, where your talk is going, and how you intend to get there. You want to keep your audience with you all the time. [Incidentally, this technique of displaying the four purposes of slides, one at a time — sometimes called “progressive disclosure” — is one way to keep the audience on track while your talk moves ahead.]

A slide can *illustrate*. If gasoline prices go much higher, and someone builds automobiles that run on windpower, words alone may not be descriptive enough. You'll want to show the car, show where the mast goes, show how the sails are mounted. A picture can be a lot clearer than words alone.

WHAT A SLIDE SHOULD DO

SERVE AS ROAD MAP

➤ ILLUSTRATE

WHAT A SLIDE SHOULD DO

SERVE AS ROAD MAP

ILLUSTRATE

➤ DRAMATIZE

A slide can *dramatize*. It can do this in several ways. A well chosen cartoon may do it. Or, on occasion, some attention-getting language — not necessarily of the Pow!-Bam!-Zowie! variety — will evoke special emphasis. Suppose, for example, you have analyzed a policy — or tactic, or gadget — to find out whether it can work. You conclude it can not. On a slide, you can state the question simply. Then, project on the screen a single, large word: “NO.” Of course, you will follow with an explanation, but your main finding will have been stated dramatically. It will be remembered long after everyone has forgotten your discussion of the means by which you reached it.

The last — and perhaps most important — use of all is to *reinforce* your message. What the audience is hearing, it is seeing at the same time. When you appeal to two senses instead of one, you have a better chance of making your point.

WHAT A SLIDE SHOULD DO

SERVE AS ROAD MAP
ILLUSTRATE
DRAMATIZE
➤ REINFORCE

MATCH SLIDE TO SCRIPT

- CONTENT
- TIMING

For a slide to do its job, it must be coordinated with the text. What the audience *sees* must accord with what it *hears*. It is obvious enough that you do not show a bathtub while talking about anchors or encyclopedias. But there's a second point that's not always so obvious: You want to make sure the slide goes *on* when that subject comes up in your talk. When you're done with the material, *turn off the slide*. As we saw earlier, a blank screen is not an ugly screen.

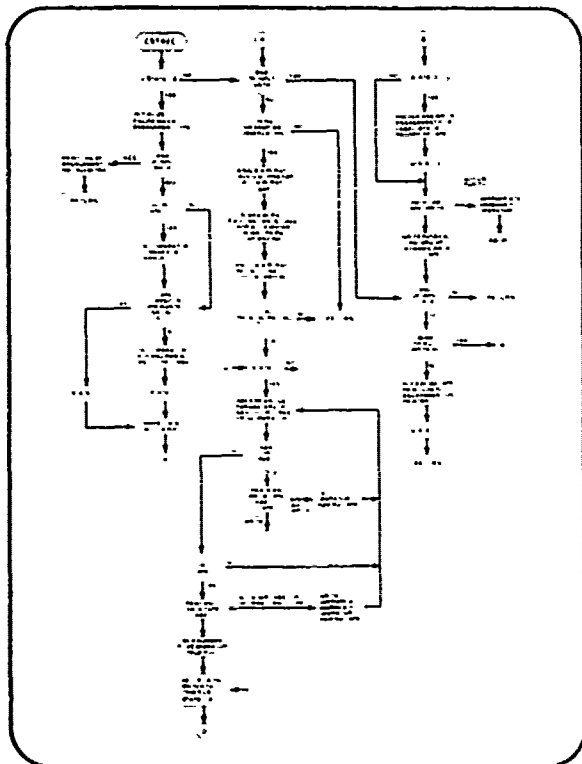
[An aside here to whoever is flipping slides: When it's time for the screen to be blank, insert a blank slide or block the light with a piece of cardboard. Do not turn the projector on and off. There's no reason to distract the audience with the sound of the switch and — what's worse — the fan.]

The reader has time. He can take a complicated graph, turn the book around, check all the curves, no matter how many there are. For better understanding, he can turn to another part of the book. He can set his own pace. The listener, by contrast, can not. This means that you have got to keep the audience informed all the way. You have got to keep your message clear enough for them to understand immediately.

DON'T LIFT

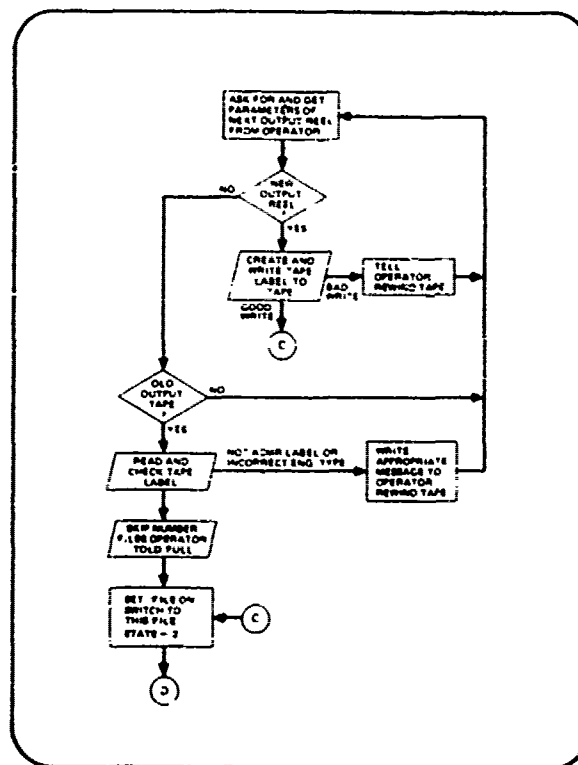
Here's a thing of beauty, a printout that was valuable beyond measure — *in print*. On the screen — a large nothing.

-5-



This flow chart was useful in the publication it appeared in. On the screen, it's a blister. The audience just can not read it.

Sometimes, though, you really have to use a flow chart. If so, carve it into usable pieces, photograph those, and walk your audience through each one in turn, to make sure the listeners know where you are going. In this case, we've taken the bottom portion and enlarged it.



This table illustrates another point about slides: Don't clutter them. Don't try to jam everything into one slide. A reasonably good rule of thumb is to limit yourself to about a dozen lines of type on a slide. Spread your message among several slides. Just don't crowd any of them.

DON'T CROWD

**(NO MORE THAN A
DOZEN LINES PER SLIDE)**

TALK STRAIGHT ENGLISH

Something else that may interfere with getting your message across is language that is not as clear as it should be. The point is to stick to straight, human language. Poor wording is bad enough in a printed publication. It is intolerable for a speaker to inflict it on a helpless audience, which can not take the time to puzzle out the meaning and lacks the nerve to leave the room and head for the bar.

To illustrate the point, I've taken a single thought out of a well known document and — to put it baldly — mangled the language. Though this is admittedly a fake, you may detect a faint resemblance to slides that you and I have sometimes been exposed to. Thomas Jefferson wrote the original words more elegantly — in the Declaration of Independence.

IN THAT THE AMATA* HAS INITIATED AND IMPLEMENTED THE APPROPRIATION OF CIVILIAN RESIDENTIAL FACILITIES BY MEANS OF THE ASSIGNMENT OF EXTENSIVE THOUGH FINITE FORMATIONS OF ARMED AND UNIFORMED SERVICE PERSONNEL, ASSIGNED AND CASUAL, COMBAT-ORIENTED AND SERVICE-ORIENTATED, ACTIVE-DUTYWISE AND LIMITED-SERVICE WISE, FOR QUARTERS AND OTHER SERVICES THERE-UNTO APPERTAINING, WITHIN BUT NOT RESTRICTED TO THE PRESENT THEATER OF ACTIVITY;

**Aforementioned monarchical and tyrannical authority*

IN THAT THE AMATA* HAS INITIATED AND IMPLEMENTED THE APPROPRIATION OF CIVILIAN RESIDENTIAL FACILITIES BY MEANS OF THE ASSIGNMENT OF EXTENSIVE THOUGH FINITE FORMATIONS OF ARMED AND UNIFORMED SERVICE PERSONNEL, ASSIGNED AND ORIGINALLY COMBAT-ORIENTED AND SERVICE-ORIENTED, ACTING IN THE MANNER AND LIMITED-SERVICE WISE, FOR QUARTERS AND OTHER SERVICES THERE-UNTO APPROPRIATIONS, WITHIN BUT NOT RESTRICTED TO THE PRESENT THEATER OF ACTIVITY;

**Aforementioned monarchical and tyrannical authority.*

FOR QUARTERING LARGE BODIES OF ARMED TROOPS AMONG US;

Here they are, on the bottom line.

But it is not only in noble documents of great historic importance that clarity is important. Some years ago, I saw this sign on the observation platform atop the Louisiana State Office Building. I'm sure you'll agree that it is sharp and clear and makes its point beyond all doubt. You would not care to be a defense attorney, trying to get a judge to believe that your client should be forgiven because "he really did not understand what was expected of him."

**ANYONE WHO THROWS AN OBJECT
FROM THE TOWER TO THE GROUND
WILL BE ARRESTED, PUT IN JAIL,
AND FINED.**

BE TERSE

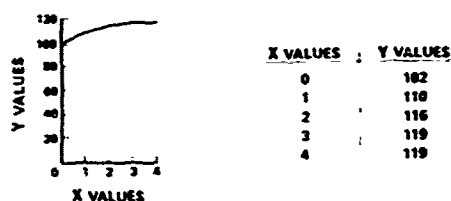
The sign demonstrates one more point of some importance — the need for brevity in slides. In a text, you use as much language as you need to make your point. In a slide, you use what amounts to a sort of shorthand. Be concise, even to the point of terseness. The fuller explanation is given by the speaker.

The next point has to do with distortion, either conscious or unconscious.

A conscious distortion reflects at least a touch of crookedness, sometimes an attempt to "prove" points that are not supported by the facts.

But unconscious distortions happen all the time, and many decent people commit them. [When Russ Murray was at CNA, he shed an especially bright light on the problem, and I am shamelessly stealing this demonstration from him.]

DON'T DISTORT

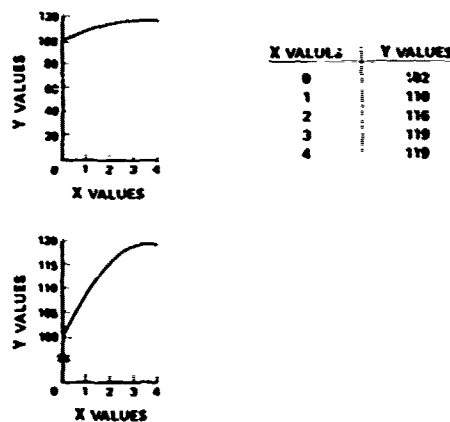


Here is a nice, simple graph. As X increases, Y increases gradually. The table at the right, with the same data, reflects the gradual increase.

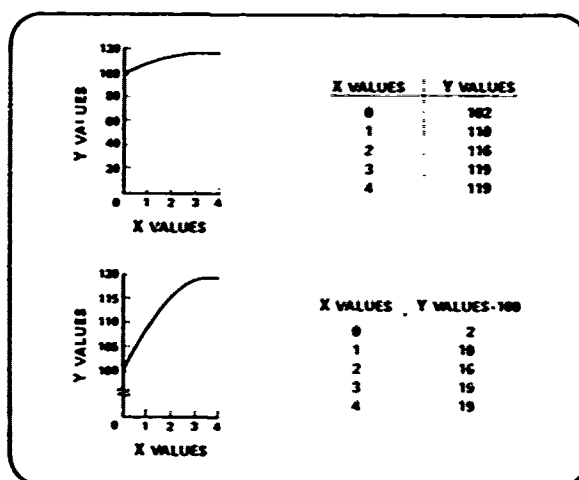
Now, somebody looks at this and say, "Aha, there's a lot of wasted space down there. They won't let me advertise there. So, I'll just spread out the curve and let it occupy all that space."

And so, with all the best intentions in the world, this very honest man does that in this graph at the lower left. We know he is honest because he has inserted a break mark, showing that, instead of starting at zero, the axis starts at 100. Surely, that's all right, isn't it?

Of course, we know it is *not*. He has distorted the thing. All of a sudden, a gentle slope has been transformed into something fit for skiing.



To prove the point, look at the same data in the form of a table. Again, the man has been honest. He tells you that each Y value is shown minus a hundred. But here, of course, the distortion is obvious. Moral: Please don't distort.



Something else you don't want to do is irritate your audience. You are probably careful not to use the pointer in some way that distracts. You don't swing it around or keep tapping it on the lectern. When you point to something on the screen, you rest it on the screen so that it won't skitter around. Generally, speakers avoid misuse of pointers.

Yet, many speakers, including very good ones, do something that can be just as irritating. They irritate with a word. You and I know that what we are looking at is a *slide*. It looks like a slide, it projects like a slide — it is a slide. Still, all of us have heard speakers who keep referring to them as slides: "On this slide we prove," "the right column of the slide," "the top of the slide," "the bottom of the slide," "the center of the slide," "see the pretty slide," "see the slide run." You can avoid this irritation — and very simply. Since everyone knows it's a slide, just disregard the fact. Say: "in the right column we have this," "the graph shows that," "take a look at the value at the bottom." You can even use a four-letter word: *here*. "Here we show . . ." whatever it is we are showing. We've removed the irritation.

**DON'T
IRRITATE**

We've said enough about bad slides. Let's look at a few proper ones. We'll take a real event and make up a few examples of the slides that the situation would require.

Put yourself back about four centuries. The year is 1588, early spring. The place is England. England is rife with rumors of invasion and war. There are good reasons for these rumors. Philip II, the King of Spain, has been bcasting all over Europe that he intends to invade England. He has been assembling supplies, massing troops at Channel ports, and — most important of all — putting together a

mighty fleet. His propagandists have named it the Invincible Armada.

So, Charles Howard, the Lord Admiral of England, turns to his favorite think tank — here we are, in this room — and says, "I want you to look into this. Come back with some findings, and tell me what you think I should do."

This is a meeting of the advisory committee. We are giving our report. The chairman of the committee, is of course, Sir Francis Drake.

We begin with a road-map kind of slide. It tells where we are and where we are going. There are two bad ways to present such a slide, and we'll consider them. Then, I'll suggest a way that may be better.

One bad way is to say, in effect: "Here is a list. While you clods are picking your way through it, I'm going out for a beer." Now, that is not only discourteous, it also does you harm, because you are relinquishing control of your talk. And you want to keep as much control of that talk as you can.

Another bad way goes to the other extreme. We've all seen it. The speaker clears his throat, turns his back, and reads us every syllable: "O-u-t-l-i-n-e o-f t-h-i-s p-r-e-s-e-n-t-a-t-i-o-n, b-a-c-k-g-r-o-u-n-d, a-s-s-u-m-p-t-i-o-n-s..." By the time he's read us two lines, we want to strangle him. Doesn't he know we can read silently a lot faster than he can read out loud? Besides, who cares to be told that being smart enough to be in this room does not imply enough intelligence to read?

What *do* you do? You want to walk your listeners through the slide, and yet you don't want to insult them. Here's a reasonably casual, informal way:

OUTLINE OF THIS PRESENTATION

- BACKGROUND
- ASSUMPTIONS
- SPANISH FORCES
- ENGLISH FORCES
- MOE, OUTLINE OF ANALYSIS
- FINDINGS
- RECOMMENDATIONS

"Sir Francis, gentlemen... [By the way, to forestall complaints, let me point out that though Elizabeth was on the throne, it is certain that in those benighted days, there would be no women in the room. Sorry about that.] "Gentlemen, this presentation will begin with some background material and assumptions. Then, I'll list the two forces — the enemy's and ours. I'll touch on our measures of effectiveness and say something about our analysis. Then, I'll tell you what we found and what we recommend."

We've done what we wanted to. We've walked the listeners through the slide without insulting their intelligence.

"Sir Francis, we've divided the problem into four main questions: Do the Spaniards really intend to invade? If they do and if they land on English soil, can we beat them, and what are the implications? If we fight them at sea, can we win? What are the implications? Finally, if we do choose to fight at sea, what tactics should we use?"

QUESTIONS

- 1 DO THE SPANIARDS PLAN TO INVACE ENGLAND?
- 2 CAN WE BEAT THEM ON LAND?
 - WHAT ARE THE CONSEQUENCES OF FIGHTING THEM ON LAND?
- 3 CAN WE BEAT THEM AT SEA?
 - WHAT ARE THE CONSEQUENCES OF FIGHTING THEM AT SEA?
- 4 WHAT TACTICS ARE BEST FOR OUR FLEET?

We move on a bit and prepare to say something about the enemy forces. Now, a word of explanation about the level of detail. If we were talking to civilians — the London Board of Trade, for instance — we might have to define the various ship types:

TYPES OF SHIPS

- GALLEON
 - GALLEASS
 - ZABRAE
 - PATACHE
 - GALLEY
 - CARAVEL

"Let me tell you a little about the Spanish warships. Some of them have strange-sounding names. The galleon is the largest of the group, the standard fighting ship of Atlantic waters. The galleass is somewhat smaller. Zabraes are smaller yet; they are fast, armed cruisers whose main uses are for scouting and pursuit..." And so on.

THE ARMADA: MAJOR SHIPS, BY TYPE

TYPE	NUMBER
GALLEONS	64
ZABRAES AND PATACHES	35
GALLEASSES	4
GALLEYS	4
CARAVELS (OARED)	20
"GREAT FLEMISH HULKS"	23
TOTAL	150

But we are talking to a naval audience. Sir Francis Drake and the other commanders know their ship types.

So, we walk through our list: "The Spaniards have 150 major ships: 64 galleons; of zabraes and pataches, 35; galleasses, 5; galleys, 4; oared caravells, 20; and 23 of a type of ship that our intelligence people merely describe as 'great Flemish hulks.' They can not tell us more. These, in summary, are the warships of the Armada."

[When a list is on the screen, it's a good idea for the speaker or the projectionist to point out each item as it comes up for discussion. The projectionist can use a pencil, but a narrow piece of clear, colored plastic can highlight each item without blocking out words or numbers.]

I told you earlier that a slide that does not advance your talk should be dumped, and that is generally true. But, this time, you've decided that the data from which you've drawn the slide may prove of interest to the audience, though not as a part of your speech. So, you produce a detailed slide as a backup, and you carry it with you, out of sight but ready for use. You'll do something like this from time to time. Generally, you take it home again, unseen by any audience. But, in this one case — because I'm writing this script — something pleasant happens. Sir Francis looks at your list of ship types, and says, "This is very interesting, but it would be useful for us also to know who the Spanish commanders are. We understand something about their individual fighting style, how they might react in a given situation. Do you happen to know who the commanders are?"

At this moment, it's important for you not to look smug, not to smile — on the outside. Ever so casually, you bring out your slide. Sir

THE ARMADA:
MAJOR SHIPS, BY COMMAND

SOURCE	COMMANDER	SHIP TYPE	NUMBER
PORTUGAL	MEDINA SODOMA	GALLEONS	10
		ZABRAES	2
BRISAY	JOHN MARTINES DE RICALDE	GALLEONS	10
		PATACHES	4
GURPUSCO	MICHAEL DE OQUEENDO	GALLEONS	10
		PATACHES	4
ITALY AND THE LEVANT ISLANDS	MARTINE DE VERTENDOMA	GALLEONS	10
CASTLE	DEGO FLORES DE VALDEZ	GALLEONS	14
		PATACHES	2
ANDALUZA	PETRO DE VALDEZ	GALLEONS	10
		PATACHES	1
FLEANDERS	JOHN LOPEZ DE MEDINA	"GREAT FLEMISH HULKS"	23
-----	HUGO DEMONCADE	GALLEASSES	4
PORTUGAL	DEGO DE MAMORANA	GALLEYS	4
-----	ANTHONY DE MENDOLZA	PATACHES AND ZABRAES	22
-----		CARAVELS (OARED)	20
	TOTAL		150

Francis finds what he wants. He and his colleagues look it over carefully, discussing the details among themselves. Are you worried about this interruption of your talk? Don't be. This is on *his* time, *not yours*. The customer has asked for some specific information, and you have given him what he needs. Later, when you get home, you may want to celebrate by pouring yourself an extra shot of buttermilk. Such happy moments are rare.

You move on to your findings.

"Sir Francis, our findings are divided into two parts — Spain's advantages and ours. First of all, they have more major ships than we do — 150 of them, including 64 galleons. England has more ships — possibly 191 — but many of them are smaller. You can see this disparity in size in our second item. They have twice as much tonnage as we do.

"Their ships are relatively invulnerable to musket fire and therefore to boarding. This is a very significant fact, Sir Francis; we'll go into it later.

"They have more naval guns aboard. I stress the word 'naval' because they are also carrying artillery pieces, presumably for use during the invasion. We, on the other hand, have more long-range guns than they do, and this is very important.

"In manpower, they outnumber us, almost two to one. Their troops are seasoned veterans, the best on the Continent. Their commander is Alexander Farnese, the Duke of Parma, regarded as the finest commander of infantry in Europe. And I must add this, Sir Francis: Our troops, as you know, are green, and they are commanded by the Earl of Leicester, who is lacking in experience. [At this point, Sir Francis has a few words to say: 'Lacking in experience,' hell! He's a blithering idiot.] Quite so, Sir Francis.

"The Spaniards have great mobility. Their ships can pick their landing areas. They can shift quickly from one landing area to another, far more quickly than we can march troops to oppose them. This capacity gives them an enormous advantage.

"Next, England's advantages: Though our ships are smaller, we have more of them. This means, among other things, that our ships — or

FINDINGS

SPAIN'S ADVANTAGES

- MORE MAJOR SHIPS (150) INCLUDING 64 GALLEONS
- GREATER TOTAL TONNAGE: 60 THOUSAND VS. 32 THOUSAND
- RELATIVE INVULNERABILITY
- MORE NAVAL GUNS
- SUPERIORITY IN MANPOWER: 32 THOUSAND VS. 17.5 THOUSAND
- TROOPS ARE VETERANS. WELL LED
- CHOICE OF LANDING AREAS. ABILITY TO SHIFT TROOPS QUICKLY

ENGLAND'S ADVANTAGES

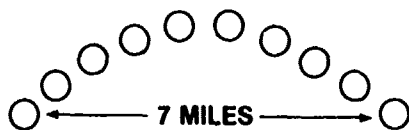
- MORE — — — — — THOUGH SMALLER — — SHIPS (POSSIBLY 191)
- SHIPS MORE MANEUVERABLE
- MORE LONG-RANGE GUNS

the Dutch flyboats — can blockade Parma's amphibious ships, keep them in port, and still have enough left to fight the enemy's warships.

"Our ships are more maneuverable. This is extremely important. We also have more long-range guns, and we'll show you that that, too, is highly significant.

"You may have noticed, Sir Francis, that we are definite in our knowledge about the Spanish forces. We say they have 150 ships. Yet, about our own forces, we say we have 'perhaps' 191. With your experience, sir, you know that we often have better intelligence about the enemy than we do about ourselves."

ARMADA FORMATION



"This is the formation developed for the Armada. The ships are positioned in a giant arc, about 7 miles from tip to tip. They are close enough to protect each other. It would be dangerous to come within range of that covering fire."

"Earlier, I stated the four questions we would try to answer. These are our answers:

We believe the Spaniards do plan to invade England.

Can we beat them on land? We believe so, but the cost would be very high.

Can we beat them at sea? Yes — we are reasonably sure of that — and the losses would be tolerable.

What tactics are best for our fleet? We shall recommend some."

QUESTIONS AND ANSWERS

- 1 DO THE SPANIARDS PLAN TO INVADE ENGLAND? **YES**
- 2 CAN WE BEAT THEM ON LAND? **PROBABLY**
 - WHAT ARE THE CONSEQUENCES OF FIGHTING THEM ON LAND?
- 3 CAN WE BEAT THEM AT SEA? **YES**
 - WHAT ARE THE CONSEQUENCES OF FIGHTING THEM AT SEA?
- 4 WHAT TACTICS ARE BEST FOR OUR FLEET?

TACTICS RECOMMENDED

JAB--DON'T SLUG

- USE FIRESHIPS
- FIRE AT LONG RANGE
- HIT AND RUN
- DO NOT CLOSE
- DO NOT TRY TO BOARD

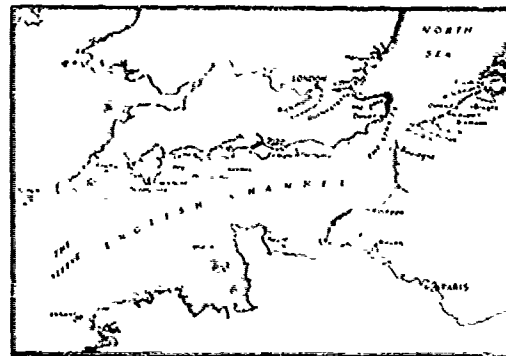
"The most important thing, Sir Francis — and we'll borrow words from another time — is to jab. Don't slug it out at close quarters. As for the tight formation of the Armada — break it up with fireships. [Of course, you don't have to explain to Sir Francis what a fireship is.] Make good use of your long-range guns. Keep firing at long range; don't get too close to the enemy ships. Take full advantage of your greater maneuverability. Do not close. Above all, do not try to board."

ALSO RECOMMENDED

● STORE AMMUNITION

“Finally, we have one more recommendation: Collect ammunition; get together as much powder and shot as you can.” [I’ve added this, entirely on the basis of hindsight, because we know, four centuries later, that the English gunners did, in fact, run out of ammunition.]

“Sir Francis, this is where engagements between our forces are likely to take place [pointing]: here, here, here, and here.”



With the help of this fine think tank, Queen Elizabeth’s navy defeats the Armada. The history of Europe – and the world – changes enormously. Evidently, when you call in a smart think tank, you can expect that sort of result.

Now, to summarize.

- First of all, make sure that any slide you use carries its own weight. If it doesn’t, don’t use it.

- Don’t worry about having the screen blank some of the time.
- Make sure that your slide and text match, that the subjects are the same, and that the slide is in view only when it should be.
- Don’t yank material out of a printed publication and think you’ve got yourself a slide; you don’t. Prepare your slide specifically as a slide.

- Use a pointer.
- Don't jam too much onto a single slide. A reasonable limit is about a dozen lines of type per slide.
- Make sure your language is clear. Don't confuse your listeners.

- Be brief, even to the point of being terse.
- Don't distort your data.
- Don't irritate your audience with distracting overuse of "slide, slide, slide."

So much for rules.



At last, we come to the architect of the victory over the Armada — Sir Francis Drake himself, a great mariner, one of the towering military figures of all time, a man who left a lasting impression on the world.

And yet this slide is wrong here. Why? It does not promote our talk.

Therefore, because it does not advance our talk: Sorry, Sir Francis — OUT!



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*Research supported by the National Science Foundation
- PP 143
Horowitz, Stanley and Sherman, Allan (LCdr., USN), "Maintenance Personnel Effectiveness in the Navy," 33 pp., Jan 1976 (Presented at the RAND Conference on Defense Manpower, Feb 1976) AD A021 581
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- PP 145
Kelly, Anne M., "Port Visits and the "Internationalist Mission" of the Soviet Navy," 36 pp., Apr 1976, AD A023 436
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Goldberg, Lawrence, "Recruiters Advertising and Navy Enlistments," 34 pp., Mar 1980, AD A082 221
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Mizrahi, Maurice M., "On the WKB Approximation to the Propagator for Arbitrary Hamiltonians," 25 pp., Aug 1980
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Golman, Walter, "Don't Let Your Slides Flip You: A Painless Guide to Visuals That Really Aid," 28 pp., Oct 1980
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